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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,933	02/27/2002	Mark Yarkosky	1528	8341

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EXAMINER	
AMINZAY, SHAIMA Q	
ART UNIT	**PAPER NUMBER**
2684	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/083,933	YARKOSKY ET AL.	
	Examiner	Art Unit	
	Shaima Q. Aminzay	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *28-30* is/are allowed.

6)☒ Claim(s) *1,3-12 and 14-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3-12, and 14-27 are rejected under 35 U.S.C.103(a) as being unpatentable over Rudrapatna (Rudrapatna U. S. Publication 2002,0132,600) in view of Smith (Smith et al. U. S. Patent 6006075).

Regarding claim 1, Rudrapatna discloses a method for transmitting wireless signals in a CDMA distributed antenna system (see for example, paragraph [0002], lines 1-4, [0004], lines 1-12, [005], lines1-12, and [0027], lines 1-8), the method comprising the steps of: providing a plurality of antennas (see for example, paragraph [0031], lines 5-8, and [0032], lines 5-25, plurality of antennas), where each antenna is configured to transmit a wireless signal to a receiver (see for example, paragraph [004], lines 1-4, [005], lines1-12, [007], lines 1-9, [0031], lines 5-8, and [0032], lines 5-25, the each antenna (103) is configured to transmit the wireless signal to a mobile station receiver), and

identify one of the plurality of antennas to transmit the wireless signal to the receiver based on a efficiency of the one of the plurality of antennas (see for example, [004], lines 1-4, [005], lines1-12, paragraph [0024], lines 1-23, [0025], lines 1-8, lines 20-32, [0026], lines 1-10, identify one of the plurality of antennas to transmit the mobile (wireless) signal to the receiver), and transmitting the wireless signal by the one of the plurality of antennas to the receiver (see for example, paragraph [004], lines 1-4, [005], lines1-12, [007], lines 1-9, [0031], lines 5-8, and [0032], lines 5-25, transmitting the mobile (wireless) signal to the plurality of receiver).

Rudrapatna does not specifically teach reliability, however, Rudrapatna teaches identifying one pair of the plurality of antennas and transmit based on a efficiency of the one of the plurality of antennas to the receiver, (see for example, paragraph [0020], lines 10-12, [0030], lines 13-14, [0031], lines 6-25),

In a related art dealing with distributed antenna systems with plurality of antennas transmitting mobile (wireless) signals (see for example, column 1, lines 42-45, column 11, lines 1-9), Smith discloses reliability (see for example, column 11, lines 19-27, lines 33-38, lines 42-49, lines 55-67, an antenna selection and reliability).

It would have been obvious to one of ordinary skill in the art at the time invention was made to choose antennas having reliability as Smith's with Rudrapatna's distributed antenna system for transmitting wireless signals in a CDMA system to provide a communication system with greater transmission and

signal diversity to overcome the effects of multi-path fading, and to improve the quality of communications system (Smith, see for example, column 1, lines 41-45, column 4, line 28-35, and column 13, lines 39-40, and column 5, lines 28-34).

Regarding claim 11, Rudrapatna discloses a CDMA distributed antenna system comprising in combination: a plurality of antennas (see for example, paragraph [0002], lines 1-4, [0004], lines 1-12, and [0027], lines 1-8, and, paragraph [0031], lines 5-8, and [0032], lines 5-25, plurality of antennas), and where each antenna is configured to transmit a wireless signal (see for example, paragraph [004], lines 1-4, [005], lines1-12, [007], lines 1-9, [0031], lines 5-8, and [0032], lines 5-25, the each antenna (103) is configured to transmit the wireless signal to a mobile station receiver), and a pathway manager coupled to the plurality of antennas (see for example, paragraph [0024], lines 1-23, [0025], lines 1-8, lines 20-32, [0026], lines 1-10, the controller (pathway manager) coupled to the plurality of antennas), and the pathway manager configured to identify one of the plurality of antennas to transmit the wireless signal based on a efficiency of the one of the plurality of antennas (see for example, [004], lines 1-4, [005], lines1-12, paragraph [0024], lines 1-23, [0025], lines 1-8, lines 20-32, [0026], lines 1-10, the controller (pathway manager) configured to identify one of the plurality of antennas to transmit the mobile (wireless) signal), and a receiver configured to receive the wireless signal transmitted by the [one of] the plurality of antenna (see for example, paragraph [004], lines 1-4, [005], lines1-12, [007],

lines 1-9, [0031], lines 5-8, and [0032], lines 5-25, the each antenna (103) is configured to receive the mobile (wireless) signal transmitted by the plurality of antennas).

Rudrapatna does not specifically teach reliability, however, Rudrapatna teaches path manager identifying one of the plurality of antennas and transmitting based on a efficiency of one of the plurality of antennas to the receiver (see for example, [004], lines 1-4, [005], lines1-12, paragraph [0024], lines 1-23, [0025], lines 1-8, lines 20-32, [0026], lines 1-10, the controller (pathway manager) configured to identify one of the plurality of antennas to transmit the mobile (wireless) signal).

In a related art dealing with distributed antenna systems with plurality of antennas transmitting mobile (wireless) signals (see for example, column 1, lines 42-45, column 11, lines 1-9), Smith discloses reliability (see for example, column 11, lines 19-23, lines 28-42, lines 59-62, a controller (path manager) identifies an antenna selection and transmitting based on a reliability of the antenna to the receiver).

It would have been obvious to one of ordinary skill in the art at the time invention was made to choose antennas having reliability as Smith's with Rudrapatna's distributed antenna system for transmitting wireless signals in a CDMA system to provide a communication system with greater transmission and signal diversity to overcome the effects of multi-path fading, and to improve the quality of communications system (Smith, see for example, column 1, lines 41-

45, column 4, line 28-35, and column 13, lines 39-40, and column 5, lines 28-34).

Regarding claim 20, Rudrapatna discloses a method of correlation for efficiency transmission of wireless signals to a receiver in a CDMA distributed antenna (see for example, paragraph [0002], lines 1-4, [0004], lines 1-12, [005], lines1-12, and [0027], lines 1-8): the method comprising the steps of: providing a plurality of antennas (see for example, paragraph [0031], lines 5-8, and [0032], lines 5-25, plurality of antennas), where the plurality of antennas are configured to transmit a wireless signal (see for example, paragraph [004], lines 1-4, [005], lines1-12, [007], lines 1-9, [0031], lines 5-8, and [0032], lines 5-25, the plurality of antennas configured to transmit the wireless signal to a mobile station), and selecting [one of] the plurality of antennas to transmit the wireless signal to the receiver (see for example, [004], lines 1-4, [005], lines1-12, paragraph [0024], lines 1-23, [0025], lines 1-8, lines 20-32, [0026], lines 1-10, selecting an antenna of the plurality of antennas to transmit the mobile (wireless) signal to the receiver) transmitting the wireless signal to the receiver using the selected [one of the] plurality of antennas (see for example, paragraph [004], lines 1-4, [005], lines1-12, [007], lines 1-9, [0031], lines 5-8, and [0032], lines 5-25, transmitting the mobile (wireless) signal to the plurality of receiver), and disabling unselected ones of the plurality of antennas from transmitting to the receiver (see for example, [004], lines 1-4, [005], lines1-12, paragraph [0024], lines 1-23, [0025], lines 1-8, lines 20-32, [0026], lines 1-10, the disabled (unselected) antennas can

not transmit to the receiver).

Rudrapatna does not specifically teach optimizing, however, Rudrapatna teaches correlation for efficiency of transmission (see for example, paragraph [0009], lines 1-5).

In a related art dealing with distributed antenna systems with plurality of antennas transmitting mobile (wireless) signals (see for example, column 1, lines 42-45, column 11, lines 1-9), Smith discloses optimizing transmission (see for example, column 2, lines 43-47, column 3, lines 7-31, in a fading environment, when the receiver receives the best signal).

It would have been obvious to one of ordinary skill in the art at the time invention was made to choose optimizing transmission as Smith's with Rudrapatna's distributed antenna system for transmitting wireless signals in a CDMA system to provide a communication system with greater transmission and signal diversity to overcome the effects of multi-path fading, and to improve the quality of communications system (Smith, see for example, column 1, lines 41-45, column 4, line 28-35, and column 13, lines 39-40, and column 5, lines 28-34).

Regarding claim 3, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 1, and further, Smith teaches collecting and storing reliability data for transmissions from each of the plurality of antennas to the receiver and selecting one of the plurality of antennas based on the stored

reliability data (see for example, column 10, lines 36-46, data is stored in memory 46).

Regarding claims 4 and 14, Rudrapatna in view of Smith teach all the claimed limitation as recited in claims 1, 11, and further, Smith teaches selecting the one of the plurality of antennas based on proximity to the receiver (see for example, column 5, lines 28-40, and Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claims 5 and 6, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 1, and further, Smith teaches monitoring a reverse communication link between the receiver and each one of the plurality of antennas thereby determining a signal strength of each incoming reverse communication link at each antenna and selecting one of the plurality of antennas based upon the signal strength of the reverse communication link (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16), and selecting one of the plurality of antennas where the signal strength of the reverse communication link meets a preferred signal strength (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column

13, lines1-16).

Regarding claims 7 and 8, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 1, and further, Rudrapatna teaches calculating a distance between each pair of the plurality of antennas and the receiver thereby establishing a set of distances and selecting of antennas corresponding to the distance (see for example, paragraph [0031], lines 1-25), and further, Smith teaches calculating a distance between each one of the plurality of antennas and the receiver thereby establishing a set of distances and selecting one of the plurality of antennas corresponding to the smallest distance among the set of distances (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claims 9 and 10, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 1, and further, Rudrapatna teaches determining the availability of the plurality of antennas, wherein an available antenna is an antenna not currently in use (see for example, paragraph [0027], lines 1-17, selecting available antenna), and further, Smith teaches selecting one of the plurality of antennas based on the availability of each one of the plurality of antennas (see for example, column 11, lines 19-27, lines 33-38, lines 42-49, lines 55-67, an antenna selection and communication channel actuation).

Regarding claim 12, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 11, and further, Smith teaches wherein the pathway manager is a device selected from the group consisting of a base transceiver station (BTS), a distributed antenna system controller (DAS), and the receiver. (see for example, Figure 4, column 9, lines 1-9, and column 10, lines 36-67, in Figures 4 controller 32, Receiver 38 (with antennas 44), and transmitter 88 (connected to antennas 26)).

Regarding claims 15 and 16, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 11, and further, Smith teaches wherein the pathway manager identifies the one of the plurality of antennas by monitoring a reverse link communication between the receiver and each antenna thereby determining signal strengths of incoming wireless signals at each antenna. (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16), and wherein the pathway manager selects the one of the plurality of antennas with a preferred signal strength (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claims 17 and 18, Rudrapatna in view of Smith teach all the

claimed limitation as recited in claim 1, and further, Rudrapatna teaches wherein the pathway manager identifies the one of the plurality of antennas by calculating a distance between each antenna and the receiver thereby establishing a set of distances (see for example, paragraph [0031], lines 1-25), and further, Smith teaches wherein the pathway manager selects the one of the plurality of antennas corresponding to the smallest distance among the set of distances (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claim 19, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 11, and further, Rudrapatna teaches selecting antenna and availability of the plurality of an antenna currently not in use (see for example, paragraph [0027], lines 1-17, selecting available antenna), and further, Smith teaches wherein the pathway manager identifies the one of the plurality of antennas by selecting the one of the plurality of antennas based on an availability of the plurality of antennas, wherein an available antenna is an antenna not currently in use (see for example, column 7, lines 19-29, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claims 21 and 22, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 20, and further, Smith teaches measuring a

signal strength of a communication link to the receiver for each one of the plurality of antennas and selecting one of the plurality of antennas having the highest measured signal strength (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16), and measuring a signal strength of a reverse link from the receiver to each one of the plurality of antennas (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claim 23, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 20, and further, Smith teaches measuring a signal strength of a communication link to the receiver for each one of the plurality of antennas further comprises measuring a signal strength of a communication signal from each one of the plurality of antennas to the receiver (see for example, column 7, lines 19-29, the communication formed based on signal strength and established distance, Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16),

Regarding claim 24, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 20, and further, Smith maintaining data relating to

reliability of transmissions to the receiver for each one of the plurality of antennas and selecting one of the plurality of antennas having the highest level of reliability (see for example, column 10, lines 36-46, data is stored in memory 46 and selected one of the plurality of antennas).

Regarding claims 25 and 26, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 20, and further, Smith teaches maintaining data relating to a proximity to the receiver for each one of the plurality of antennas; and selecting one of the plurality of antennas having the closest proximity to the receiver (see for example, column 5, lines 28-40, and Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16, selecting an antenna based on proximity to the receiver), and maintaining data relating to interference between each one of the plurality of antennas and the receiver (see for example, column 5, lines 28-40, and Figures 7-8, and detailed information, column 12, lines 9-67 continues to column 13, lines1-16).

Regarding claim 27, Rudrapatna in view of Smith teach all the claimed limitation as recited in claim 20, and further, Smith teaches wherein the steps of the method are performed in a device selected from the group consisting of a BTS, a DAS, and the receiver (see for example, Figure 4, column 9, lines 1-9, and column 10, lines 36-67, in Figures 4 controller 32, Receiver 38 (with antennas 44), and transmitter 88 (connected to antennas 26)).

Allowable Subject Matter

2. Claims 28-30 are allowed..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shaima Q. Aminzay whose telephone number is 703-305-8723. The examiner can normally be reached on 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703-308-7745, the primary examiner, Nick Corsaro can be reached on 703-306-5616. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NICK CORSARO
PRIMARY EXAMINER

Shaima Q. Aminzay
(Examiner)

April 14, 2005

Nay Maung
(SPE)
Art Unit 2684